Use of Ponded Ash and Fine Crushed Sand for Flowable Slurry  
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ABSTRACT  
The American Coal Ash Association has reported that over 11 million tons of ponded coal fly ash and bottom ash are generated each year (1999). Of the ponded materials, only 0.2% have been used in flowable fill applications. The source of coal ash utilized for this project was a Class F coal ash from Illinois that was wet collected and ponded. A combination of fly ash and bottom ash were utilized for the CLSM manufactured at the facilities of a ready-mixed concrete producer. Crushed sand, obtained from a limestone quarry, was also used for the CLSM. The crushed fine sand is a by-product of the quarry process and typically does not have a significant demand for use. It is typically landfilled. A typical quarry can generate thousands of tons of crushed fine sand per year. A total of five mixtures were developed in the laboratory consisting of different combinations of ponded coal ash and fine crushed sand, from 0% coal ash and 100% fine sand, to 100% coal ash and 0% fine sand. Each of the mixtures were tested for compressive strength, water permeability, and setting and hardening characteristics following procedures specified by the Illinois Department of Transportation. Based upon the laboratory results, these five mixtures were modified for prototype-scale production at the facilities of a ready-mixed concrete producer. Compressive strength test specimens were made at the time of placement of the field mixtures to verify results obtained from the laboratory mixtures. Results of the project show that CLSM can be successfully manufactured using two by-product materials, ponded coal ash and fine crushed sand.